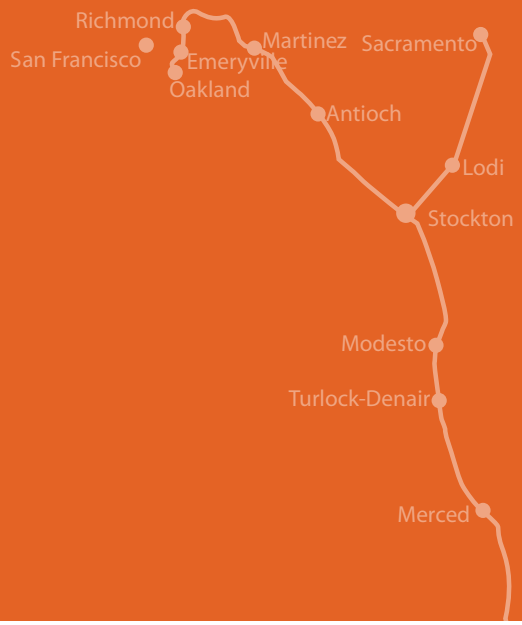
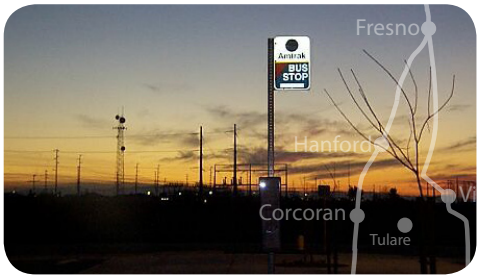
San Joaquin Corridor

STRATEGIC PLAN



Prepared for CALIFORNIA DEPARTMENT OF TRANSPORTATION March 2008



Executive Summary

PB 100 YEARS

1.0 EXECUTIVE SUMMARY

The California Department of Transportation (Caltrans) initiated the development of this Strategic Plan to formalize the short-, medium-, and long-term visions of the San Joaquin Corridor, given the anticipated population growth, the need to address the importance of rail as a transportation option in the Central Valley, and the funding availability to meet the projected needs.

Through an extensive public outreach program, project alternatives for the corridor have been defined and assessed. This Plan presents a summary of these alternatives and the relative merits of each based on order-of-magnitude cost estimates and collaboratively-developed evaluation criteria. The screening process involved an evaluation of the constructability, service and performance, community benefits and impacts, and environmental benefits and impacts of each alternative.

This Plan then concludes with a proposed timeline and schedule of recommended projects based on these evaluations and screening efforts, thus creating a plan of action for the corridor over the short-, medium-, and long-term.

1.1 PURPOSE AND NEED FOR IMPROVEMENTS

The purpose of the San Joaquin Corridor Strategic Plan is to develop a program of improvements that would increase rail ridership, revenue, capacity, reliability, and safety within the corridor. Key stakeholders include Amtrak, BNSF Railway, Union Pacific Railroad, and metropolitan planning organizations and/or regional transportation planning agencies throughout the corridor. They provided input on the proposed improvements through a series of agency stakeholder meetings and public workshops.

Objectives of the Strategic Plan include the following:

- Foster better communication and understanding among stakeholders at all levels (owners and operators of the rail corridor, government agencies, elected representatives, and the public).
- Using existing inventories and databases, analyze current technologies utilized to protect at-grade crossings and develop a menu of options that can be deployed to enhance safety and reduce delays to trains as a result of accidents. In addition, prioritize a list of crossings along the corridor needing immediate enhanced protections.
- Screen design options at key locations, so as to focus future work on the most promising alternatives.
- Evaluate the potential market and operational feasibility for scheduling additional train frequencies between Stockton and Oakland, as well as between Stockton and Sacramento.
- Compare alternatives for possible extensions of train service to Wheeler Ridge (near Grapevine) and/or overnight trains across the Tehachapi Pass from Bakersfield to Los Angeles.

The objective of the San Joaquin Corridor Strategic Plan is to develop a set of strategies for meeting the needs of the San Joaquin Corridor while laying out a plan to guide improvements in the corridor over time.

- Develop short- and long-term visions for the corridor, contemplating a program of projects for the next 20 years.

The need for strategic rail improvements within the corridor relates to:

- Increased congestion and travel delays on roadways associated with the continued growth in the region.
- Unreliability of the existing travel modes due to congestion, delays, weather conditions, accidents, and other conditions.
- The limited capacity of the existing transportation system to effectively move goods and people.
- Air quality and environmental issues associated with the increasing number of motor vehicles and additional highway construction.
- Increased potential for accidents at at-grade crossings as automobile and rail traffic volumes increase.

The San Joaquin Corridor boasts the fifth highest ridership of any Amtrak service in the country

The San Joaquin Corridor Strategic Plan develops a set of strategies for meeting these needs in the San Joaquin Corridor while laying out a plan to guide improvements in the corridor over time.

1.2 OVERVIEW OF THE SAN JOAQUIN CORRIDOR

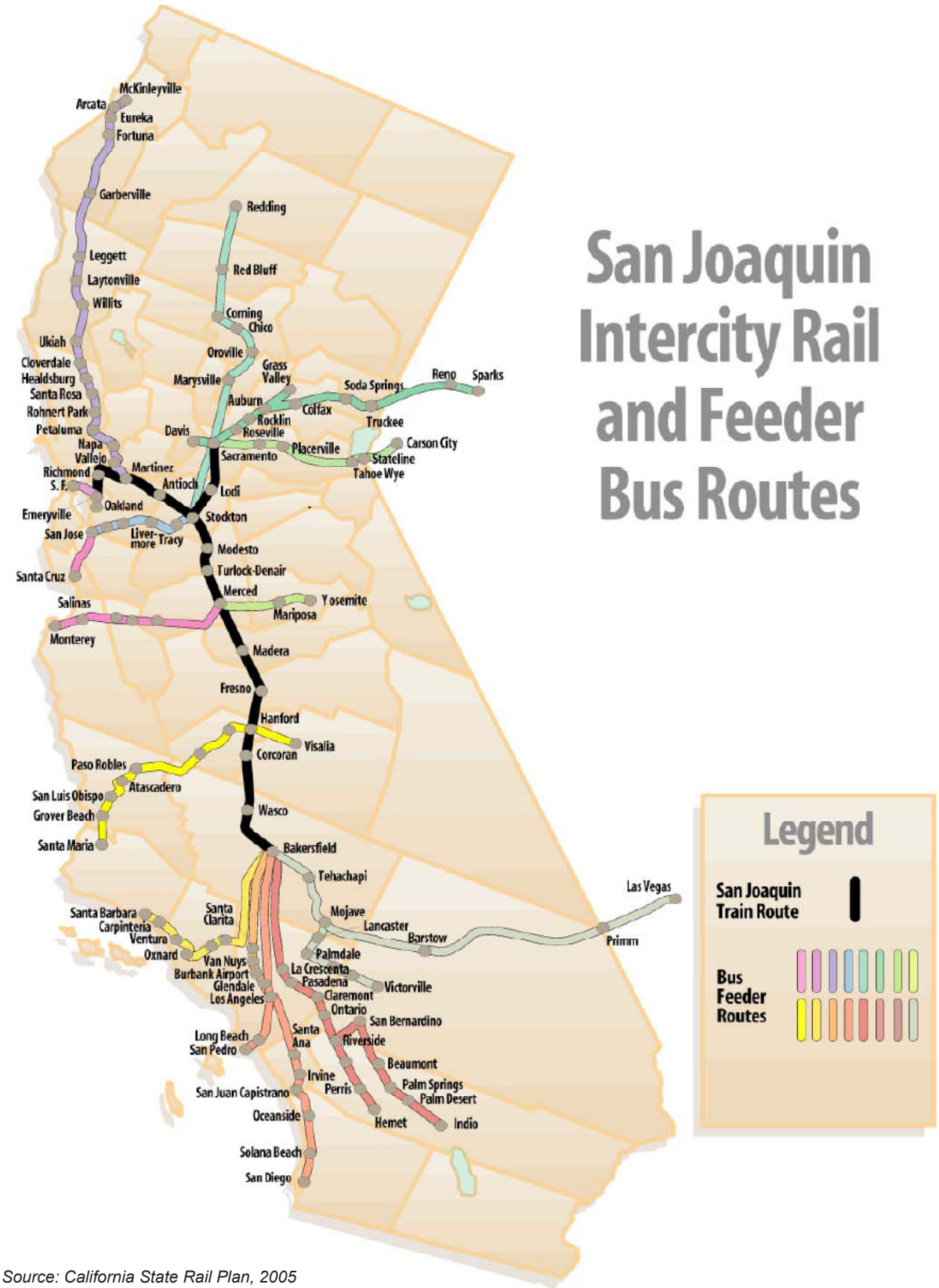
The San Joaquin Corridor (Bakersfield to Oakland and Sacramento) is a major transportation resource between Southern and Northern California and boasts the fifth highest ridership of any Amtrak service in the country. It serves a vital function in providing intercity service within and between cities in California's Central Valley.

The 363-miles of the San Joaquin Corridor carry intercity passenger rail and freight service, with connections to commuter rail services in Stockton. The current operating schedule includes six daily round trip trains: four between Oakland and Bakersfield and two between Sacramento and Bakersfield. All trains run between Stockton and Bakersfield. In order to provide the six-frequency service between all points on the route, connecting buses are provided between Stockton and Sacramento for trains serving Oakland - Bakersfield; and for trains serving Sacramento - Bakersfield, connecting buses are provided between Stockton, Oakland and San Francisco. See Figure 1.2.1 for a San Joaquin route map including the connecting bus service.

The average travel time between Oakland and Bakersfield is 6 hours and 13 minutes with an overall average speed, including station dwell time, of 50 miles per hour. Between Sacramento and Bakersfield, the average travel time is approximately 5 hours and 19 minutes with an overall average speed of 53 miles per hour. The maximum track speed on the San Joaquin Corridor is 79 miles per hour.

Amtrak operates the San Joaquin line under provisions of its contracts with the BNSF and UPRR. Predominant right-of-way

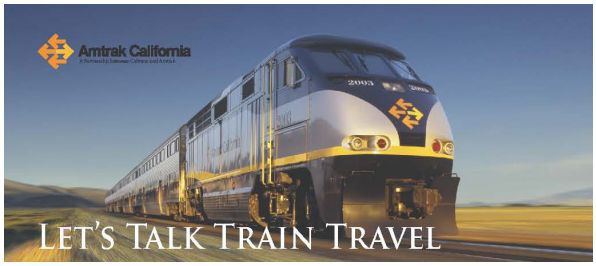
Figure 1.2.1
San Joaquin Intercity Rail and Feeder Bus Routes



Source: California State Rail Plan, 2005

ownership is by the BNSF which owns the 276 miles of track from Port Chicago to Bakersfield. The UPRR owns 39 miles at the north end of the route between Oakland and Port Chicago and 49 miles in the segment between Stockton and Sacramento.

Chapter 2 provides a detailed description of the corridor, including information on the cities along the route, existing stations, and rail services provided in those areas, and related planning studies that are currently underway.



1.3 COMMUNITY AND STAKEHOLDER OUTREACH

An extensive community and stakeholder outreach program was undertaken for the Strategic Plan, which included informational flyers, notifications and public meetings at 10 locations across the Central Valley that were held between November 2006 and March 2007. Built around the theme of "Let's Talk Train Travel," the program included public outreach and input in the following forms:

- Development of print materials;
- Public workshops held in the counties of Contra Costa, Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kern, and Tulare;
- Presentations to groups;
- Seat drops on trains (flyers or surveys placed on each seat of the train);
- Distribution of print materials at events such as the Sacramento Light Rail Transit (LRT) grand opening;
- Distribution of print materials at stations;
- Hotlines—e-mail and toll-free telephone—and mailed comment cards and letters;
- Web site; and
- Informal contacts.

The information and many suggestions received through the public outreach program include potential considerations for short-term (3 to 5 years), medium-term (6 to 10 years) and long-term (11 to 25 years) rail improvements. On-time performance was one issue in particular that was identified as a critical area for improvement. Following are the most frequently mentioned issues. Many riders offered specific, thoughtful solutions for dealing with the issues.

1.3.1 Short-Term

Communication

- Riders and potential riders want information, education, and reassurance. They want it in writing, from rail staff and from station staff; and they want more of it. Especially useful would be information before and during their travel about connecting with other transit providers. Communication becomes especially critical because of the reliability, on-time performance uncertainty.

Safety and security

- Riders want to know their cars will be in the parking lot, untouched, when they return. And, they want to feel safe getting to and from their cars and in the stations.

1.3.2 Medium-Term

Scheduling

- More trains throughout the day would provide helpful intermediate solutions. This would allow passengers to spend more time at their destinations.

More stations

- More stations and stops would help to address growth issues and lessen travel times, especially for commuters, and address requests for interregional service.

1.3.3 Long-Term

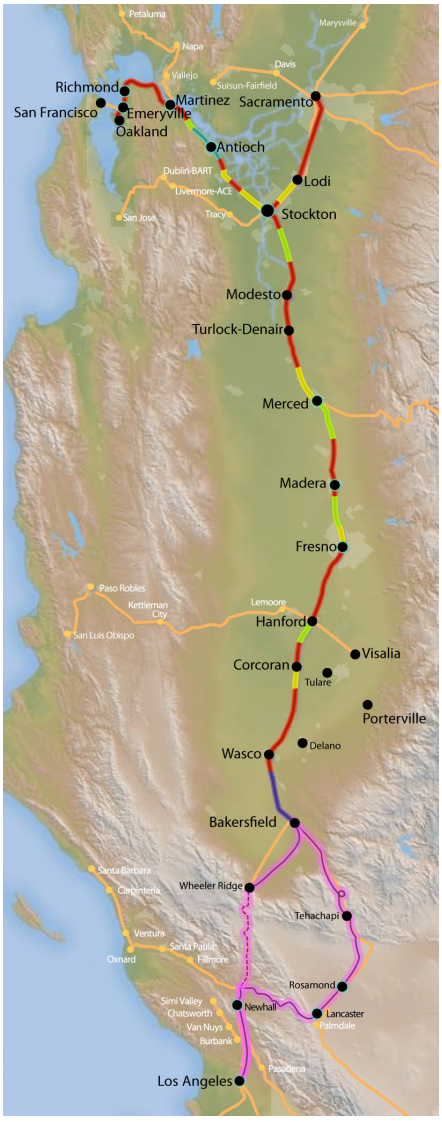
Union Pacific Railroad (UPRR) Corridor in Central Valley

- Add passenger rail service to communities along the UPRR corridor, both in the northern valley between Modesto and Stockton and between Fresno and Visalia.

Direct connections

- Consider direct connections (tunnels and bridges) to Los Angeles, the Bay Area, and other points north, south, and east. It was emphasized that connections to Los Angeles and San Francisco could be accomplished with the planned statewide high speed rail system.

Figure 1.4.1
San Joaquin Corridor
Alternatives



1.4 DEFINITION OF ALTERNATIVES

Based on public comment and stakeholder input, a set of alternatives for improving San Joaquin Corridor passenger service was developed, including potential improvements not only along the existing corridor, but also for enhancing passenger service to Los Angeles and introducing new services to the east San Joaquin Valley cities of Visalia, Tulare and Porterville. These alternatives are summarized in Figures 1.4.1 and 1.4.2 and described below.

1.4.1 Alternative 1: Capacity and Service Enhancements

Alternative 1 focuses improvements for the San Joaquin Corridor on providing a phased approach to implementing service and capacity (frequency and track) improvements along the existing San Joaquin Corridor. Relying on service projects, public input and existing plans, this alternative would prioritize projects into four categories of improvements that include “Immediate”, “Near-Term”, “Medium-Term”, and “Long-Term” projects.

The incremental frequency improvements proposed for this alternative assumed:

- 7 roundtrips by 2012
- 8 roundtrips by 2017
- 10 roundtrips by 2032

1.4.2 Alternative 2: Overnight Service to Los Angeles

This alternative focuses improvements for the San Joaquin Corridor on returning passenger service between Bakersfield and Los Angeles over the Tehachapi mountain range. To minimize impacts to freight traffic over the pass, passenger operations would be limited to no more than two overnight trips, departing either Bakersfield or Los Angeles during night time hours, arriving at either location in the early morning hours, providing additional connections with northbound San Joaquin service in Bakersfield, or southbound Pacific Surfliner or Metrolink trains in Los Angeles.

In addition to the improvements outlined in Alternative 1, the frequency improvements for this alternative assumed:

- 1 roundtrip by 2017
- 2 roundtrips by 2032

1.4.3 Alternative 3: Service to Wheeler Ridge

This alternative focuses improvements for the San Joaquin Corridor on providing additional infrastructure in support of an extension of the San Joaquin service south of Bakersfield to the Wheeler Ridge/Grapevine area along a largely new right-of-way. This service expansion is intended to coincide with expanded Pacific Surfliner or Metrolink services to the Newhall station, north of Los Angeles. The purpose for this service expansion would be to shorten the length of the bus connection between Los Angeles and the San Joaquin Corridor.

In addition to the improvements outlined in Alternative 1, the frequency improvements for this alternative assumed:

- 8 roundtrips by 2017
- 10 roundtrips by 2032

1.4.4 Alternative 3a: Pacific Surfliner or Metrolink Service Expansion to Newhall

Similar to the previous service expansion alternative, this alternative focuses improvements for the San Joaquin Corridor on expanding Surfliner or Metrolink services to the Newhall station, north of Los Angeles, without a service expansion to the Wheeler Ridge/Grapevine area. Again, the purpose of this service expansion would be to shorten the length of the bus connection between Los Angeles and the San Joaquin Corridor. This alternative is seen as a lower cost alternative to Alternative 3.

In addition to the improvements outlined in Alternative 1, the frequency improvements for this alternative assumed:

- 8 roundtrips by 2017
- 10 roundtrips by 2032

1.4.5 Alternative 4: Service Extension to Visalia

This alternative focuses improvements for the San Joaquin Corridor on providing a service extension to the Visalia and Tulare areas via the Union Pacific and San Joaquin Valley Railroad out of Fresno. This would likely operate as a separate train from the San Joaquin service, however depending on schedules, splitting or joining trains in Fresno may be possible. This service would provide peak period connections between Fresno and the Visalia/Tulare area.

In addition to the improvements outlined in Alternative 1, the frequency improvements for this alternative assumed:

- 2 roundtrips by 2017
- 5 roundtrips by 2032

Figure 1.4.2
San Joaquin Corridor
Alternatives

1.4.6 Alternative 5: Service Extension to Porterville

This alternative is a modification of Alternative 4 that focuses improvements for the San Joaquin Corridor on extending the service south of Visalia and Tulare to Porterville, with possible bus connections between Porterville and Bakersfield. As with Alternative 3, this would likely operate as a separate train from the San Joaquin service, again depending on schedules, splitting or joining trains in Fresno may be possible. This service would also provide peak period connections between Fresno and the Visalia/Tulare and Porterville areas.

In addition to the frequency improvements outlined in Alternative 1, the incremental frequency improvements proposed for this alternative include:

- 2 roundtrips by 2017
- 5 roundtrips by 2032

1.5 COMPARISON OF ALTERNATIVES

The alternatives were compared and prioritized in terms of service and performance, cost-effectiveness, community acceptance, and potential environmental effect. The purpose of the comparison was to identify a preferred alternative that is implementable and maximizes the overall benefit of the corridor in the most cost-effective manner.

1.5.1 Service and Performance

The alternatives identified in this Strategic Plan provide a range of service and performance benefits to the overall San Joaquin service. Reduction in travel time, increased ridership and the overall service related benefits or impacts of each of the alternatives were compared in order to highlight the alternative with the greatest potential for enhancing the overall operation of the San Joaquin service.

Identify a preferred alternative that is implementable and maximizes the overall benefit of the corridor

1.5.2 Cost-Effectiveness

The cost-effectiveness, or cost-benefit, of each alternative was evaluated based on estimated capital or operating costs for implementing the proposed or expanded services, compared to the incremental increase in ridership forecasted.

1.5.3 Community Benefits or Impacts

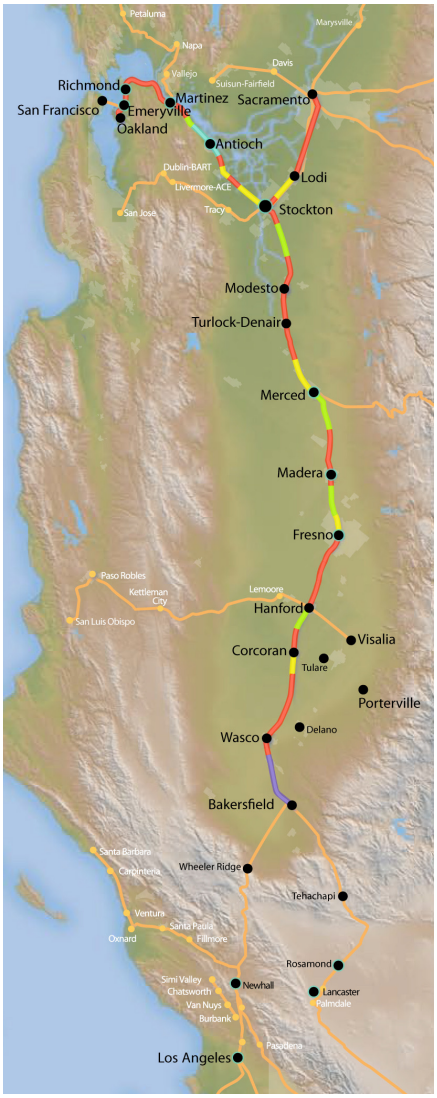
As part of the alternative comparison process, several factors relating to the community interests were reviewed at a high level in order to identify any possible fatal flaws associated with the alternatives. These community based factors include the potential impacts associated with noise and aesthetic changes; impacts to cultural resources; and impacts to social and economic resources.

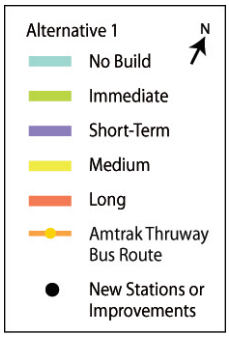
1.5.4 Environmental Benefits or Impacts

The environmental impacts of each alternative were also considered during the alternative comparison process. The existing environmental conditions within the San Joaquin Corridor, including geological conditions, hydrological conditions, hazardous materials, and natural resources, provided the baseline upon which the environmental analysis of each alternative was performed.

Detailed results of the comparison of alternatives are discussed in the Technical Appendix to this document.

Figure 1.6.1
Preferred Improvement Alternative





1.6 PREFERRED ALTERNATIVE AND IMPROVEMENTS

Based on the comparison of alternatives, the alternative that presented the greatest overall benefit for the San Joaquin service was Alternative 1. The remaining alternatives should however continue to be revisited as the population demand in the Central Valley continues to increase over the next 25 years.

To assist in identifying the most critical projects to be included in the “Immediate” and “Short-term” horizons, an operational review that focused on a capacity and performance analysis was conducted by the BNSF Railway. The analysis tested the train performances across the San Joaquin Corridor between Richmond and Bakersfield in four simulation scenarios.

The analysis used the Berkeley Simulation Software Rail Traffic Controller (RTC) simulation model to identify locations where infrastructure projects are and will be required in the immediate- and short-term time frames to maintain “fluid” movement of all trains (freight and passenger) along the corridor. For the purposes of this analysis, “fluid” has been identified as an overall delay ratio of 25 percent or less for the entire length of the corridor, meaning the trains are delayed by no more than 25 percent of their scheduled time from one end of the corridor to the other.

Based on the results of the BNSF Capacity and Performance Analysis, the following projects were identified and categorized into “Immediate” (1 to 2 year) and “Short-Term” (3 to 5 year) projects. Those projects identified under the “Medium-Term” (6 to 10 year) and “Long-Term” (11 to 25 year) are projects that have been identified by the Caltrans Division of Rail in previous studies and reports as being necessary to accommodate planned service increases beyond the 5-year horizon.

Beyond the work conducted by the BNSF and the projects identified in the previous studies and reports, several operational or capacity improvement projects have already been classified as underway or programmed. These projects along the corridor have been identified as “No-Build” projects and are also presented in the list provided below. The No-Build typically represents a constrained alternative that assumes no additional improvements beyond those already identified as underway or programmed. It is important to note that the list presented below identifies only track infrastructure projects. It is recognized that numerous safety, station and communication projects are also identified along the San Joaquin Corridor and these projects are summarized and listed in Section 9.0 of the Technical Appendix.

1.6.1 No-Build Projects

- Second Main track between Port Chicago and Oakley
- Construct crossover between mainline tracks and siding at Merced
- Extend siding track with associated signal and other tracks at Emeryville

1.6.2 Immediate Improvements

- Second Main Track between Hanford and Kings Park
- Siding Extension at Pittsburg
- Second Main Track between Walnut and Duffy
- Second Main Track between Merced and Le Grand
- Siding Extension at Gregg
- Station Security Improvements

1.6.3 Short-Term Improvements

- Additional Second Main Track between Merced and Le Grand
- Second Main Track between Duffy and Escalon
- Siding Extension at Figarden
- Second Main Track Extension at Shirley
- Second Main Track between Jastro and Shafter
- Corridorwide Signal Upgrades

1.6.4 Medium-Term Improvements

- PTC/ETMS Installation
- Stockton to Holt Second Main Track
- Riverbank Second Main Track
- Merced to Winton Second Main Track
- Fresno Grade Crossings and Track Improvements with Second Main Track
- Hammond Siding Extension
- Angiola to Corcoran Second Main Track
- Orwood Siding Extension
- Akers to Lodi Second Main Track
- Madera to Planada Second Main Track and Curve Realignment

1.6.5 Long-Term Improvements

- Bixler Curve Realignment
- Merced River Curve Realignment
- Wasco to Corcoran Curve Realignment and Track Upgrades
- Modesto Curve Realignment
- Jastro Curve Realignment
- Complete Double-Tracking of San Joaquin Corridor

1.7 POTENTIAL SAFETY IMPROVEMENTS

1.7.1 Grade Crossing Safety

There are over 400 public and private at-grade crossings along the San Joaquin Route, which includes locations on both the Union Pacific and the BNSF Railway. Of these 400-plus at-grade crossings, 362 are located along the BNSF and are comprised of 255 public and 107 private crossings. While these at-grade crossings are critical for the daily function of many cities, towns and farms, they also pose a safety hazard to railroad operations. On a statewide basis, the San Joaquin Corridor has 3 out of the top 10 and 8 out of the top 20 at-grade crossings with the most reported accidents between 1995 and 2004.

Generally it is up to the local agency (city, county) to improve at-grade crossings with state, federal and local funds that are routinely available to them for roadway projects. Funding for grade crossing improvements is scarce and Section 8.1 of the Technical Appendix provides a description of the funding sources available to local jurisdictions for grade crossing improvements.

1.7.2 Station Safety Improvements

The San Joaquin Route serves a total of 17 stations. Of these 17, 12 are unique to the San Joaquin Corridor and five are shared stations with the Capitol Corridor. The public outreach process identified a great concern for passenger safety at the stations throughout the San Joaquin Valley. In particular, secure parking was identified as a primary deterrent to passengers using the train for trips that would require an overnight visit for fear that their car would be burglarized or vandalized at the station while they were gone. The public also stated that it was important to have stations that were considered safe so that if someone had to wait for a delayed train, that they would have a comfortable, secure environment to wait for the train. Section 8.2 of the Technical Appendix provides a summary of the stations, their current status and possible improvements.

1.8 RAIL PROJECT FUNDING

Rail project funding relies primarily on state and federal support. However, more and more cities, counties, and regional agencies are taking funding of commuter and intercity/interregional rail service into their own hands. This is especially true for relatively low-cost capital projects, such as station and grade crossing improvement projects.

1.8.1 State Funding

Currently, the State of California supports the majority of the intercity rail projects through its many funding programs. These funding programs include:

The State of California supports the majority of the intercity rail projects

- The Public Transportation Account
- State Highway Account (SHA)
- Proposition 1B: Highway Safety, Traffic reduction, air quality and port security bond act of 2006
- Section 190 (Grade Separation Program Fund)
- Traffic Congestion Relief Program (TCRP) / Proposition 42

In addition to existing state sources of funding, other State sources such as the bond to fund the proposed High Speed Rail network in California could provide additional resources for the San Joaquin service.

1.8.2 Federal Funding

At the Federal level, there have been a number of proposals for an ongoing intercity rail capital grant program, but to date, no program has been enacted. It is difficult to develop long-range service plans that are dependent upon new equipment and capital projects when funding levels are uncertain. Also, it is difficult to determine what are the most cost-effective capital projects in the short-term, when the magnitude of the long-term capital program is uncertain. Some sources of existing Federal funds include:

- Passenger Rail Investment and Improvement Act of 2007
- The Federal Section 1010/1103 Program and the Federal Section 130 Program
- Federal Excise Fuel Tax
- Transportation Infrastructure Finance and Innovation Act (TIFIA)
- Transit Security Grant
- Amtrak capital funding

1.8.3 Regional Funding

Regional measures are also a source of funding, particularly in response to Regional Transportation Plans and Congestion Management Plans. A good example of such a regional measure is Regional Measure 2, which funds a variety of highway and rail projects in the Bay Area.

1.8.4 Local Funding

As mentioned above, local sources play an increasingly important role in funding intercity rail projects, such as city and county funds secured though general fund apportionments, local bond measures, or taxes.

The adopted strategy should have guiding principles that will be the litmus test as to if a project or suggestion should be pursued

1.9 INSTITUTIONAL ISSUES AND NEXT STEPS

The institutional structure of the San Joaquin Valley Rail Committee (SJVRC) and how its membership currently functions were examined. Based on this assessment, recommendations as to opportunities for the committee to leverage its role not only as an advisory committee, but also a political force were developed.

The Caltrans Division of Rail provides staff support for the SJVRC, which was established February 11, 1987 to “discuss and formulate plans, suggestions, and ideas for changes and improvements to passenger train service” within the 13 counties which originally made up the San Joaquin Corridor.

In 1987, the 13 counties were Alameda, Contra Costa, Fresno, Kern, Kings, Los Angeles, Madera, Merced, Sacramento, San Joaquin, San Mateo, Stanislaus and Tulare. In September 2002, San Mateo County asked to be removed from the Committee. In 2007 Mariposa County became a full member of the Committee.

Each county may have two representatives, one of whom must be an elected official. Associate members represent Amtrak, the Public Utilities commission, BNSF, UP, the Metropolitan Transportation Commission (MTC), Southern California Association of Governments (SCAG), and Caltrans.

The Committee’s current focus has been on the existing service, its quality and possible service improvements. However, the Committee can provide more direction in its planning, suggestions and ideas for improvement to the passenger train service. One way of encouraging the ownership of the issues by the Committee would be to assign Committee members to planning and analysis reports or programs that are under development, which are traditionally found under “Item 6 – Reports” in the package of material presented to the committee. By assigning the committee members with a reporting function, they will need to interact with the technical and or Caltrans staff to understand the issues and bring them to the full committee. For example Committee member Dianne Fritz took the initiative to bring the issue of the Bay Area Regional Rail plan to the Committee. Perhaps she could be the Long Range Planning liaison for the Committee. Other possible categories would include: Marketing and Customer

Service, Train Operations, Bus Operations, Budget and Legislative and Capital Projects. Each of the Committee members would be asked to give a report on each of the topics and possibly craft motions for the committee to act on.

The Strategic Plan has identified an operating plan and the capital projects necessary to produce a considerable return on investment in ridership and revenue.

The Committee should adopt a strategy and make the tracking of progress a central theme of their meetings. With a well-established strategy, the Committee could focus on how it will fund projects or prioritize those projects based on available funding.

The Committee's adopted strategy should have guiding principles that will be the litmus test as to if a project or suggestion should be pursued. For example some guiding principles for the committee could be:

- Run the trains on schedule.
- Make all stations on the corridor safe and attractive.
- Increase the number of round trips.
- Increase ridership cost effectively.

Help guide the San Joaquins into the 21st Century as the regional feeder and distributor service to California's high speed passenger rail network

1.9.1 Next Steps

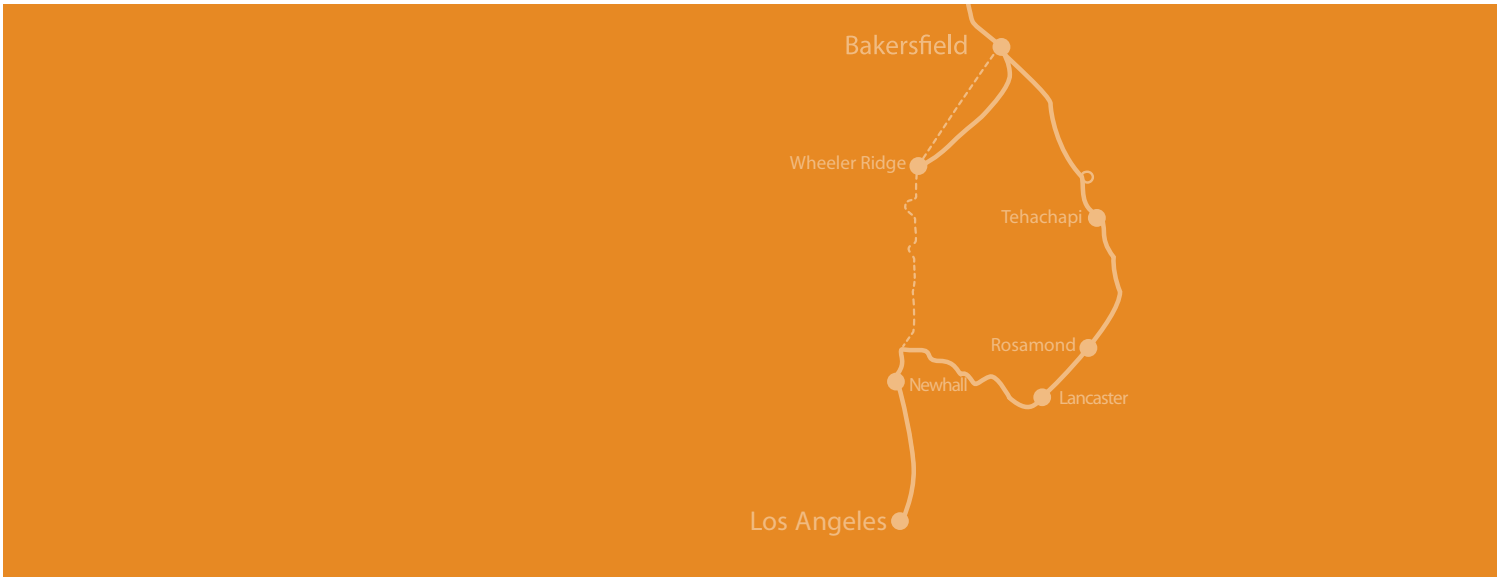
The Committee should continue to foster its existing relationships and cooperation with the other rail agencies and operators in the San Joaquin Valley including Altamont Commuter Express (ACE), Capitol Corridor Joint Powers Authority (CCJPA), BNSF Railway and the Union Pacific Railroad. Enhancing the level of communication and cooperation with these agencies can help identify alternative sources of funding and support and accelerate project delivery.

The Committee should continue its cooperative and collaborative relationship with the California High Speed Rail Authority and their efforts to develop a statewide high speed train network. The benefits from this cooperation can help to push improvements to the regional rail infrastructure in the Central Valley and help guide the San Joaquins into the 21st Century as the regional feeder and distributor service to California's high speed passenger rail network.


Richmond
San Francisco
Martinez
Emeryville
Oakland
Sacramento
Antioch
Lodi
Stockton
Modesto
Turlock-Denair
Merced
Madera
Fresno


Corcoran
Wasco


Visalia
Porterville
Delano


Bakersfield
Wheeler Ridge
Tehachapi
Rosamond
Newhall
Lancaster
Los Angeles